Evidence-based practices for co-occurring brain injury and substance use disorders

Carolyn Lemsky, Ph.D.,C.Psych. ABPP-Cn

NeuroRestorative's COVID-19 Response

- We are committed to protecting the health and safety of the individuals we serve, our staff, and the community. Our services are considered essential, and we are taking precautions to minimize disruption to services and keep those in our care and our team members safe. In some programs, that has meant innovating our service delivery model through Interactive Telehealth Services. We provide Interactive Telehealth Services throughout the country as an alternative to in-person services. Through Interactive Telehealth Services, we deliver the same high-quality supports as we would in-person, but in an interactive, virtual format that is HIPAA compliant and recognized by most healthcare plans and carriers.

- You can learn more about our COVID-19 prevention and response plan at our Update Center by visiting **neurorestorative.com**.

The Brain Injury Association of NH Substance Use Disorder, Brain Injury and Mental Health Interagency Task Force is pleased to partner with NeuroRestorative on this webinar and would like to acknowledge that a portion of this webinar was financed under a contract with the State of New Hampshire, Department of Health and Human Services, Bureau of Drug and Alcohol Services and/or such other funding sources as were available or required, e.g. the United States Department of Health and Human Services.

Acknowledgements

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- The Team at Community Head Injury Resource Services of Toronto
- Center for Addictions and Mental Health, Toronto Canada

Author : TBI and Substance Use Tool Kit
Co-Author: Substance Use and Brain Injury Workbook.

Funders:
  – Ontario Neurotrauma Foundation
  – SAMHSA, and ATTCs
  – National Association of State Head Injury Administrators.

Review

John Corrigan, Ph.D.
Director, Ohio Valley Center for Brain Injury Prevention and Rehabilitation

What is a Brain Injury?	What are the Effects of Brain Injury?	Why is brain injury related to behavior problems?	How can you screen for TBI and other Injuries?
Acquired Brain Injury (ABI): Stroke, tumor or disease. Traumatic Injury (TBI) is an ABI caused by external force. Range in severity Effects add-up At risk groups: e.g. military, abuse survivors and substance users people with a previous TBI.	TBI raises the risk for: •Disability •Depression •Poor Mental Health •Chronic Disease •Heavy Substance Use •Smoking Cigarettes •Suicide All ABIs may result in changes in cognition in behavior, affecting their ability to participate in the care being offered.	Fingerprint of TBI • No matter how the head is hit, the frontal lobes and underlying structures are vulnerable. • Acquired injuries such as anoxia also affect the frontal lobe and its connections to the emotional system. • Good emotional and behavioral regulation are critical for success in society	ABI is common in users of substance use and mental health and housing programs, and corrections. Carefully eliciting self-report can identify people who may be living with the effects of ABI. Simple accommodation for ABI is possible and effective in improving outcomes.

A history of TBI with LOC is common in mental health and addictions settings.

A history of TBI with LOC is common among the clients you serve

Non-institutionalized adults
1 in 5

People seeking treatment
for SUD
2 - 3 in 5

Psychiatric Inpatients
2 - 3 in 5

Co-occurring Disorders
3-4 in 5

Moderate to Severe TBI

Non-institutionalized adults
3-6%

People seeking treatment
for SUD 15-20%

Psychiatric Inpatients
20 %

Homeless
12 to 15 %

Clinical Observations

Gap between "say and do"

Difficulty Engaging

Finding services

Making and keeping appointments
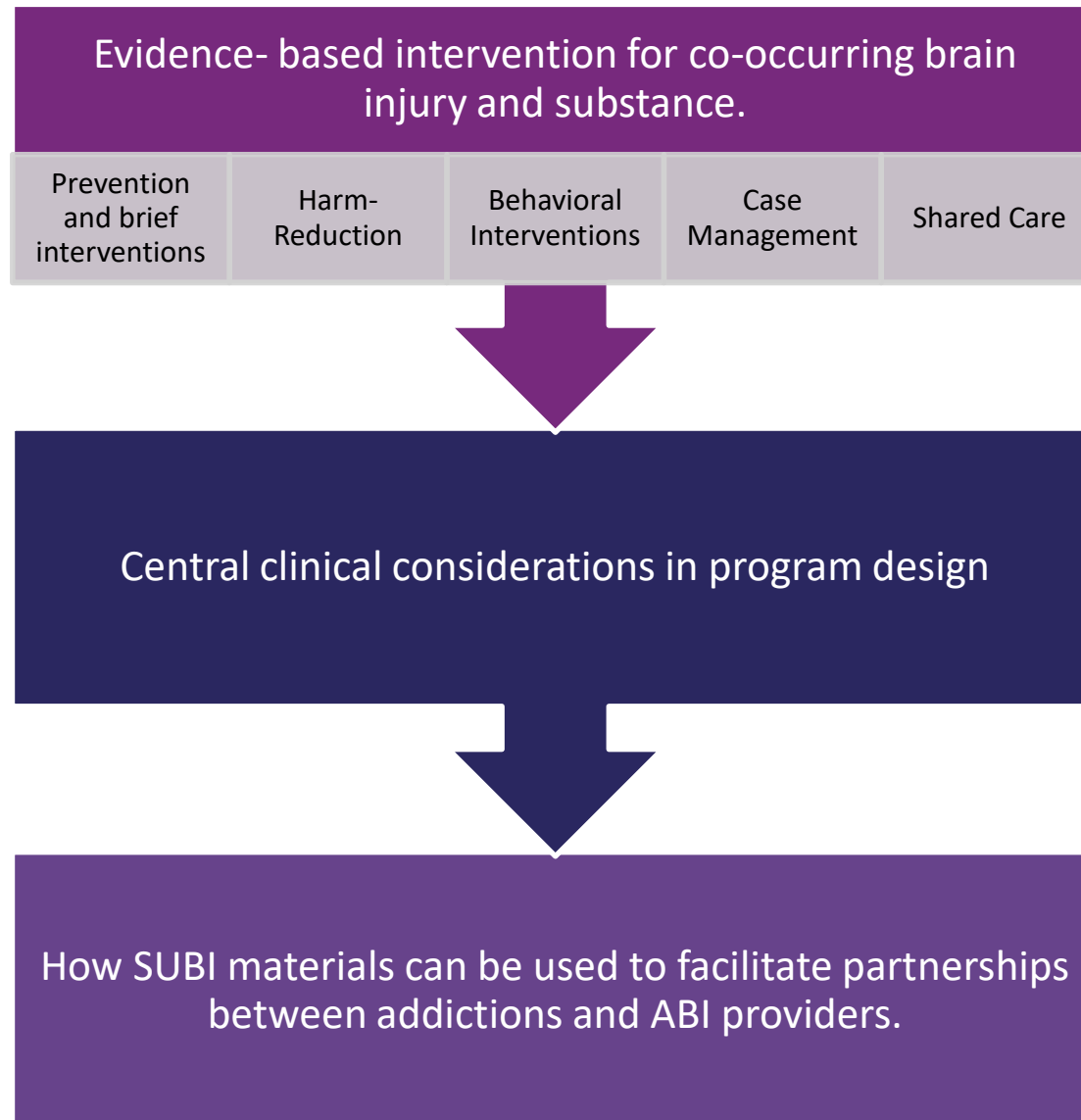
Keeping up with program requirements

Dropping out

More likely to be seen as non-compliant or unmotivated

Learning Objectives

Evidence- based intervention for co-occurring brain injury and substance.

Prevention and brief interventions	Harm-Reduction	Behavioral Interventions	Case Management	Shared Care

Central clinical considerations in program design

How SUBI materials can be used to facilitate partnerships between addictions and ABI providers.

A few myths to address

You need to have very specialized training to help someone with a substance use disorder.

Treatments with the strongest evidence base resemble interventions you are already familiar with.

Treatment only starts when a person has a commitment to change.

Harm reduction interventions are useful on their own and may be the path to intervention/support

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People with complex problems don't change

Longer periods of intervention may be required. Supports may need to fade in over time

American Society of Addiction Medicine

Addiction is a treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequences. Prevention efforts and treatment approaches for addiction are generally as successful as those for other chronic diseases.

Adopted by the ASAM Board of Directors September 15, 2019

Blackwood & Cadet, 2021
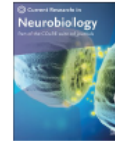
The molecular neurobiology and neuropathology of opioid use disorder

Christopher A. Blackwood[**], Jean Lud Cadet[*]

Molecular Neuropsychiatry Research Branch, NIH/NIDA Intramural Research Program, 251 Bayview Boulevard, Baltimore, MD, 21224, USA
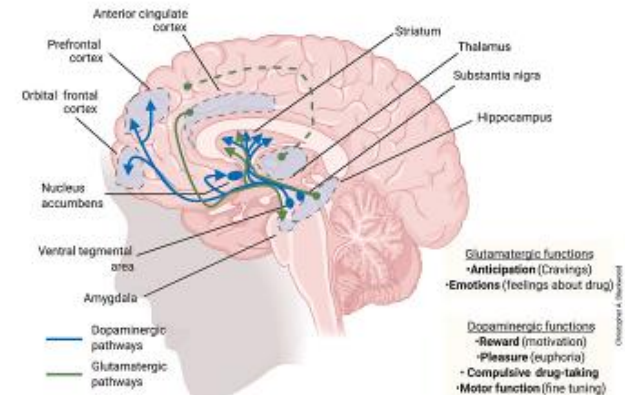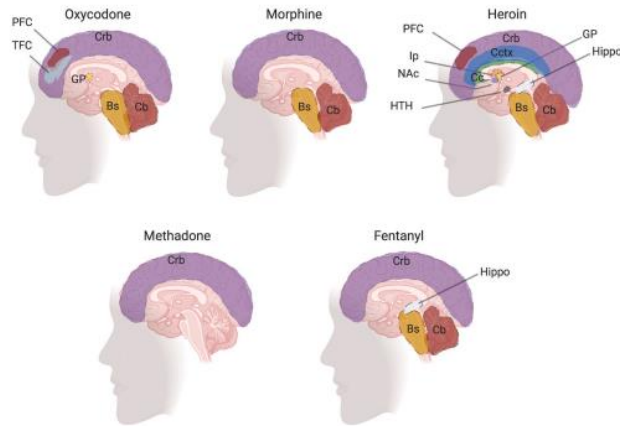

Fig. 2. Brain deficits in human opioid use disorders. Cartoon illustration of human brain showing areas affected by acute or chronic intoxication of heroin, morphine, oxycodone, methadone and fentanyl. Abbreviations: Bs, Brain stem; Cb, Cerebellum; Crb, Cerebrum; Cctx, Cingulate cortex; Cc, Corpus Callosum; GP, Globus Pallidus; Hippo, Hippocampus; HTH, Hypothalamus; Ip, Insula and putamen; NAc, Nucleus Accumbens; PFC, Prefrontal Cortex.

3

13

Neurocognitive

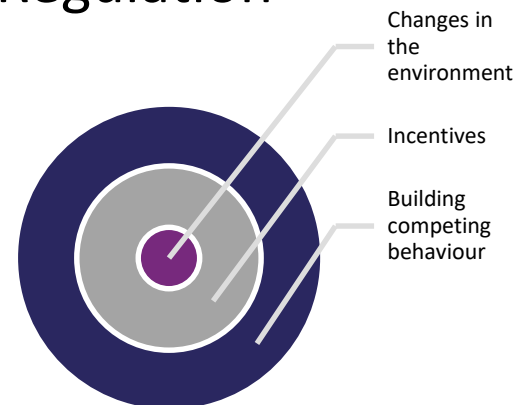## Require adaptations to the mechanics of Intervention.

- Attention
- Memory
- Information Processing
- Executive Functioning
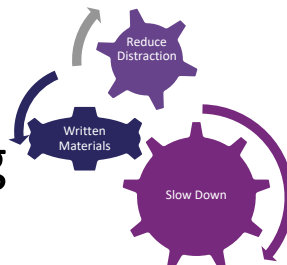
Neuro-behavioural

Require adaptations to the focus of intervention

- Problems with Self-Regulation

Changes in the environment

Incentives

Building competing behaviour

Comprehensive, Continuous, Integrated System of Care (CCISC) Model

Co-occurring issues and conditions are an expectation, not an exception.
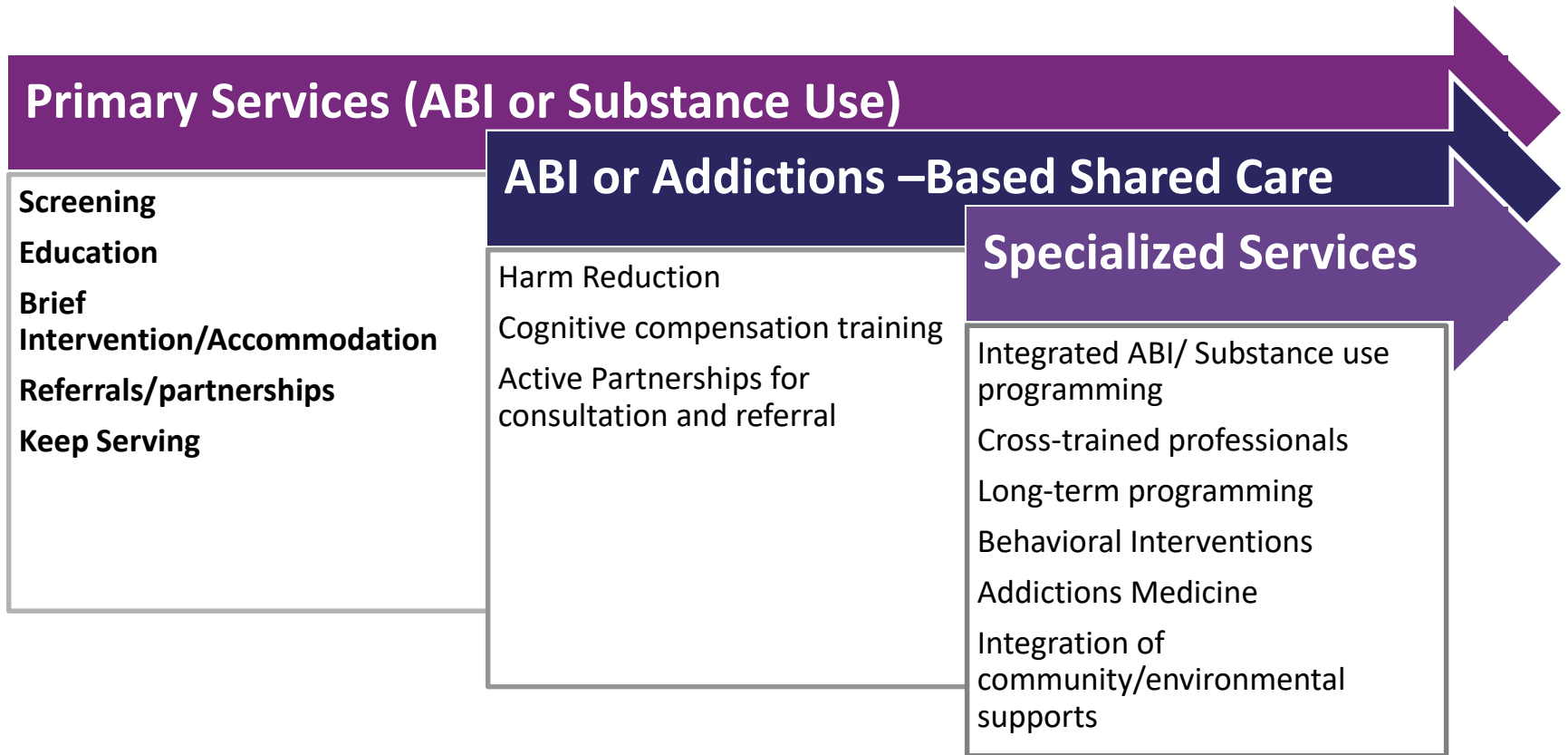
Care is client-centered and individualized.

Treatment should be co-occurring.

The best practice intervention is integrated dual or multiple primary treatment, in which each condition or issue receives appropriately matched intervention at the same time.

Minkoff K & Cline C, Developing welcoming systems for individuals with co-occurring disorders: the role of the Comprehensive Continuous Integrated System of Care model. J Dual Diagnosis 2005, 1:63-89

Integrating intervention

Primary Services (ABI or Substance Use)

Screening

Education

Brief Intervention/Accommodation

Referrals/partnerships

Keep Serving

ABI or Addictions –Based Shared Care

Harm Reduction

Cognitive compensation training

Active Partnerships for consultation and referral

Specialized Services

Integrated ABI/ Substance use programming

Cross-trained professionals

Long-term programming

Behavioral Interventions

Addictions Medicine

Integration of community/environmental supports

Recommendations

Routine Screening for brain injury and other sources of neurocognitive impairment and Substance use disorders

Learning to recognize when behaviors are the result of neurological challenges and/or Substance Use

Making programs more accommodating, Learn about evidence based practices

Viewing complexity as a rule and develop programming accordingly

Care plans that include long-term supports and harm reduction

ABI-tested interventions

- Brief Interventions (Bogner et al., 2021)

- Treatment incentives (Corrigan et al., 2005)

- Intensive case management (Bogner et al., 1997)

- Skills training (Vungkhanching et al., 2007)

- Motivational Interviewing (Cox et al., 2003)

Empirically Supported Interventions (General Population)

- Brief Treatment/FRAMES

- Community Reinforcement and Family Training CRA/CRAFT

- Contingency Management

- Motivational Interviewing

- Case Management

- Harm reduction

- Peer-assisted (12 Step -AA/NA; Smart Recovery)

- Pharmacotherapy

- Cognitive Behavioural Strategies (Relapse Prevention)

Outcome studies suggest…

- Outcome related to treatment duration
- Characteristics associated with dropping out
  - Cognitive impairment
  - Psychiatric disorders
  - Unemployment
- Retention in treatment is associated with Therapeutic Alliance

https://www.samhsa.gov/sbirt
https://www.ccsa.ca/resources-alcohol

- **F**eedback
- **R**esponsibility
- **A**dvise
- **M**enu for change,
- **E**mpathy, and enhancing
- **S**elf-efficacy.
- Screening
- Brief Motivational Interview
- Recommendations for more information or follow-up.

SBIRT
SCREENING, BRIEF INTERVENTION, AND REFERRAL TO TREATMENT

Screening, Brief Intervention, and Referral to Treatment (SBIRT)

SBIRT is a comprehensive, integrated, public health approach to the delivery of early intervention and treatment services for persons with substance use disorders, as well as those who are at risk of developing these disorders.

Primary care centers, hospital emergency rooms, trauma centers, and other community settings provide opportunities for early intervention with at-risk substance users before more severe consequences occur.

Resources (alcohol)

Screening and Treatment Resources

Healthcare and allied health professionals — including family physicians, nurses, addiction specialists, psychologists and social workers — use alcohol screening, brief intervention and referral to treatment (SBIRT) to help individuals manage their alcohol consumption. The resources on this page link to evidence-informed guidance and tools.

For additional information about alcohol screening, brief intervention and treatment, or to share additional resources, contact alcohol@ccsa.ca

Partner organizations have supplied some of the resources on this page. CCSA cannot vouch for the accuracy or currency of the information in these resources. Inclusion of a resource on this page does not imply endorsement or authorization by CCSA.

Alcohol and Risk

If you have decided to drink alcohol, drinking it in moderation can help to lower the risks of alcohol-related harms. Canada's Low-Risk Alcohol Drinking Guidelines can support individuals to make informed choices about alcohol consumption and reduce the short- and long-term health risks.

Canada's Low-Risk Alcohol Drinking Guidelines are intended for Canadian adults aged 25–65 who choose to drink alcohol. The related resources below also provide advice for youth, young adults, older Canadians and other priority populations.

Why it is bad for your brain health to use alcohol or other drugs after a brain injury?

After an injury the brain reacts differently to alcohol and other drugs. A small amount of alcohol can have big consequences, such as:

1. Longer or worse recovery
2. More problems with coordination, walking and talking
3. Doing or saying things without thinking
4. Problems with thinking and learning
5. Being depressed or irritable
6. Bad decisions
7. Another brain injury
8. Seizures

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/media/files/wexnermedical/patient-care/healthcare-
services/neurological-institute/neuroscience-research-
institute/research-centers/ohio-valley/for-
professionals/substance-abuse-and-tbi/materials-
from-ovc/information-for-individuals-and-family-
members.pdf

Information for Individuals and Family Members
User's Manual for Faster...More Reliable Operation of a Brain After Injury

Your Brain is Like a Computer

The human brain is often compared to a computer, full of bits of information, able to make swift, steady connections. Just like a computer, the brain has many programs like the ones that allow us to move, think and make decisions.

To operate, a computer uses software, a set of instructions to tell it what to do. Our brains use instructions too. Those instructions are like software—bits of information that include our knowledge, attitudes and beliefs.

Computer software → Word Processing Spreadsheets Graphics

Knowledge Attitudes Beliefs ← Brain software
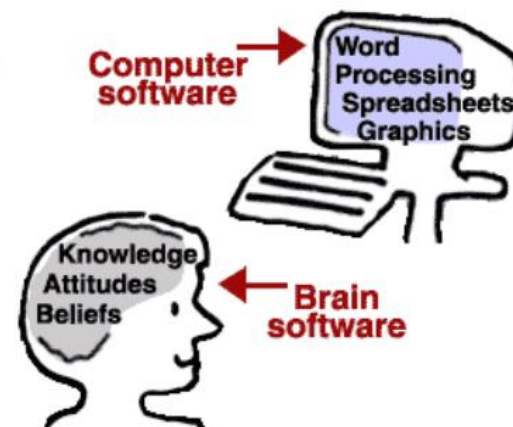
Conclusions from Studies of SBI with persons with TBI

Multimedia education appears to be the primary source of effects on knowledge and beliefs, with possible indirect effect on alcohol use.

Methodological challenges

      Recruitment and attrition

      Short follow-up timeframe

Need to further modify brief interventions to increase effects

Sander, Bogner, Nick, A. N. Clark, Corrigan and Rozzell (2012)

Tweedly, Ponsford and Lee (2012)

Comparative Effectiveness of a Brief Intervention for Alcohol Misuse Following Traumatic Brain Injury: A Randomized Controlled Trial

Jennifer Bogner[1], John D. Corrigan[1], Juan Peng[2], Chelsea Kane[1], and Kathryn Coxe[3]

[1] Department of Physical Medicine and Rehabilitation, Division of Rehabilitation Psychology, College of Medicine, Ohio State University
[2] Center for Biostatistics, College of Medicine, Ohio State University
[3] College of Social Work, Ohio State University

lower percentage of participants in the Adapted SBI condition resumed alcohol use by 12 months post discharge (32% vs. 62% in the SEA condition, p , .05).

No significant differences were found on other outcomes (binging, facts recalled about the negative effects of alcohol, drug use).

Contingency Management

Based on Operant-conditioning literature

Tangible reinforcement based on verifiable evidence of desired behavior (e.g. abstaining via urine sample).

50 years of positive trials related to treatment engagement and treatment outcome.

Public perception and policy have been the big barriers to implementation.

Substance Abuse and Rehabilitation

Dovepress
open access to scientific and medical research

Open Access Full Text Article

REVIEW

A review of contingency management for the treatment of substance-use disorders: adaptation for underserved populations, use of experimental technologies, and personalized optimization strategies

This article was published in the following Dove Press journal:
Substance Abuse and Rehabilitation

Sterling M McPherson[1–4]
Ekaterina Burduli[1–5]
Crystal Lederhos Smith[1–4]
Jalene Herron[2,6]
Oladunni Oluwoye[2,6]
Katherine Hirchak[2–4]
Michael F Orr[1–5]
Michael G McDonell[1–5]
John M Roll[1–5]

[1]Department of Medical Education and Clinical Sciences, Elson S Floyd College of Medicine, Washington State University, [2]Programs of Excellence in Addictions Research, Washington State University, [3]Analytics and Psychopharmacology Laboratory (APPL), Washington State University, [4]Translational Addictions Research Center, Washington State University, [5]College of Nursing, Washington State University, [6]Behavioral Health Interventions (BHI), Washington State University, Spokane, WA, USA

Abstract: This review of contingency management (CM; the behavior-modification method of providing reinforcement in exchange for objective evidence of a desired behavior) for the treatment of substance-use disorders (SUDs) begins by describing the origins of CM and how it has come to be most commonly used during the treatment of SUDs. Our core objective is to review, describe, and discuss three ongoing critical advancements in CM. We review key emerging areas wherein CM will likely have an impact. In total, we qualitatively reviewed 31 studies in a systematic fashion after searching PubMed and Google Scholar. We then describe and highlight CM investigations across three broad themes: adapting CM for underserved populations, CM with experimental technologies, and optimizing CM for personalized interventions. Technological innovations that allow for mobile delivery of reinforcers in exchange for objective evidence of a desired behavior will likely expand the possible applications of CM throughout the SUD-treatment domain and into therapeutically related areas (eg, serious mental illness). When this mobile technology is coupled with new, easy-to-utilize biomarkers, the adaptation for individual goal setting and delivery of CM-based SUD treatment in hard-to-reach places (eg, rural locations) can have a sustained impact on communities most affected by these disorders. In conclusion, there is still much to be done, not only technologically but also in convincing policy makers to adopt this well-established, cost-effective, and evidence-based method of behavior modification.

Keywords: contingency management, novel substance-use treatment technologies, drug- and alcohol-use biomarkers, substance-use disorder treatment

Introduction

Contingency management (CM) is an effective behavioral treatment approach commonly applied to substance-use disorders (SUDs). CM has a long history in basic and clinical research and a deep theoretical background for virtually all types of use disorders.[1] Interestingly, while CM was applied first to the field of alcohol-use disorders,[2-5] only now, after a protracted dormancy in that field, is CM being applied in a manner consistent with what has become a largely standardized approach in the field of drug abuse (ie, delivery of reinforcers in exchange for biochemically verified abstinence) to increase abstinence significantly and consistently.[6,7]

Correspondence: Sterling M McPherson
Department of Medical Education and Clinical Sciences, Elson S Floyd College of Medicine, Washington State University, PO Box 1495, Spokane, WA 99210, USA
Email sterling.mcpherson@wsu.edu

Treatment incentives

In the general population, early attendance predicts treatment success

Corrigan, Bogner, Lamb-Hart, Heinemann & Moore (2005):

> Brief Motivational Interview
> Reduction of barriers to attendance
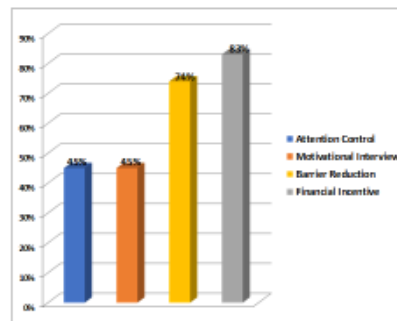> Financial incentives
> Attention control

Findings

N = 195 (138 men; 57 women)
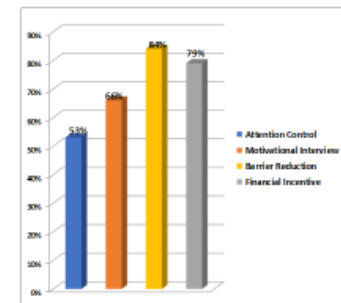
Mean age = 36.6 (range = 18 to 72)

Mean time since injury = 8.0 years (range = 3 weeks to 55 years)

% Complete individual service plan in 30 days

Six-month follow-up data

- By six months, over 30% had terminated therapy
- 50% improvement over control for Barrier Reduction and Financial Incentives
- Brief phone intervention makes a big difference

Still in treatment or successfully terminated

Why did these interventions work?

Attendance early in treatment increases engagement

Rule-governed learning is easier for many individuals surviving brain injury and enabled engagement

Support to attend sessions enabled engagement

CRAFT

Main outcome is entry into treatment

Works best with full model employed (individual /group treatment)

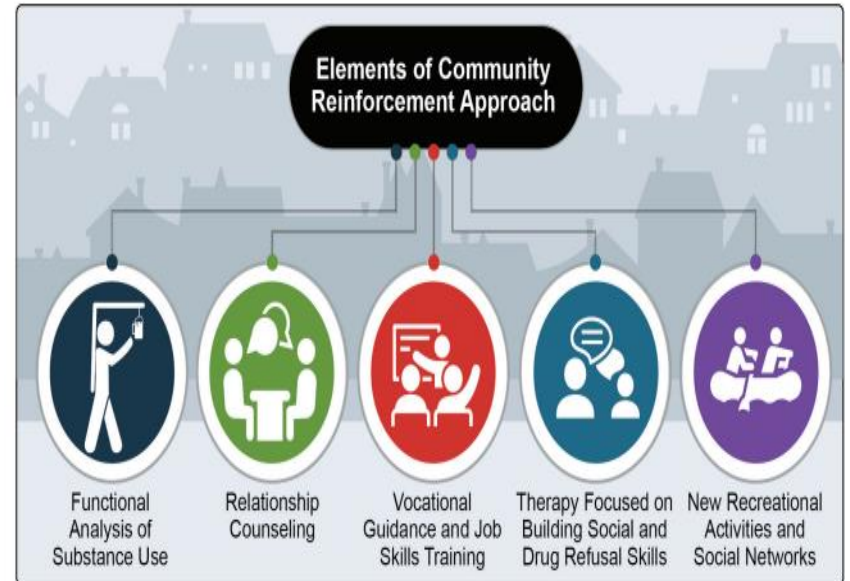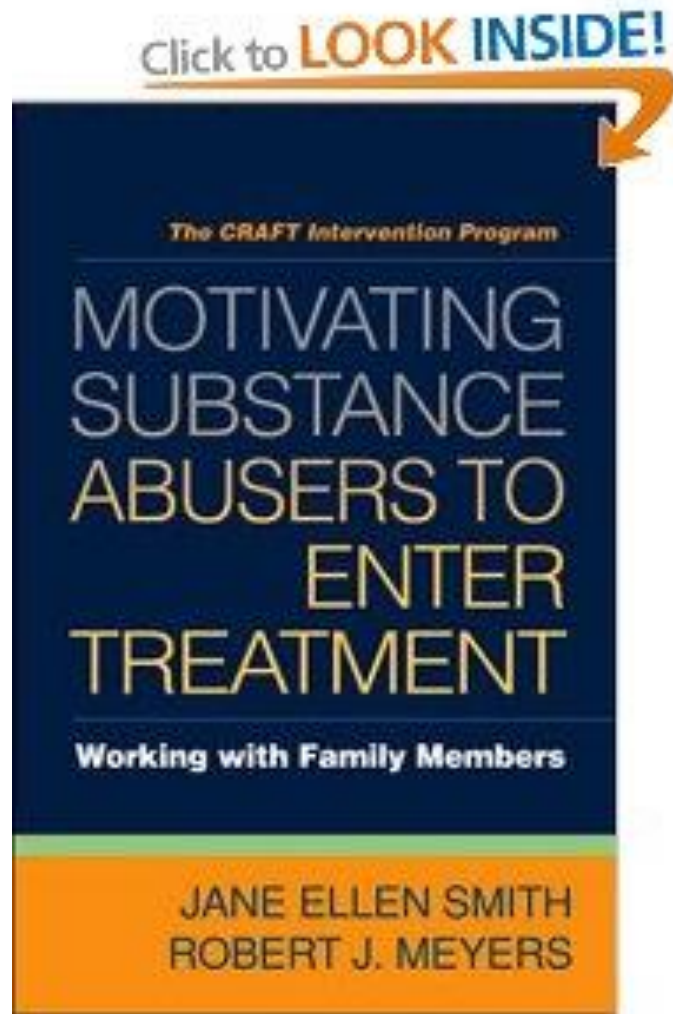Reduces harms and improves family member's mental health and life satisfaction.

Community reinforcement and family training and rates of treatment entry: a systematic review

Marc Archer [1], Hannah Harwood [1], Sharon Stevelink [1] [2], Laura Rafferty [1], Neil Greenberg [1] [3]
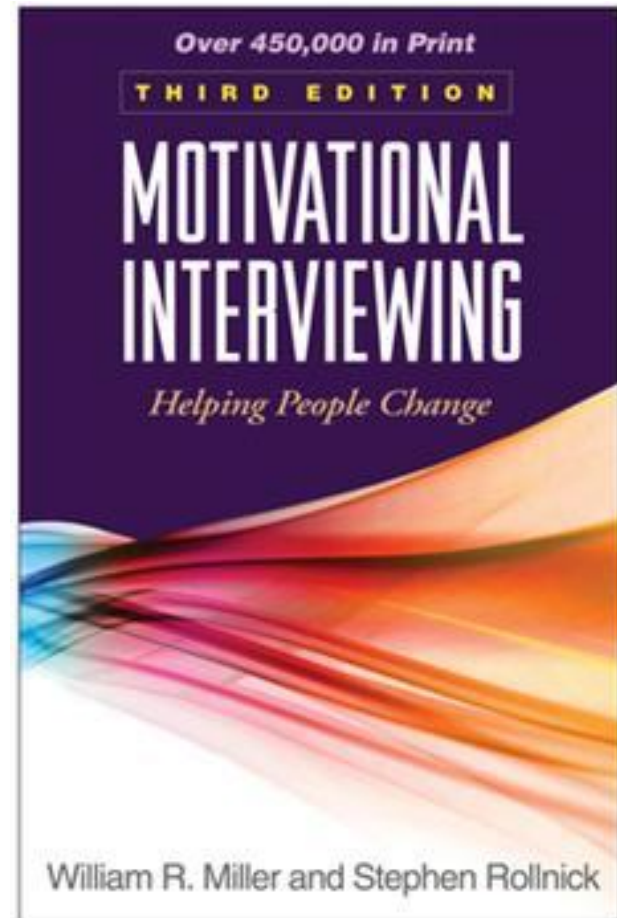
Affiliations + expand

Community Reinforcement and Family Training

Click to LOOK INSIDE!

The CRAFT Intervention Program

MOTIVATING SUBSTANCE ABUSERS TO ENTER TREATMENT

Working with Family Members

JANE ELLEN SMITH
ROBERT J. MEYERS

Elements of Community Reinforcement Approach

Functional Analysis of Substance Use

Relationship Counseling

Vocational Guidance and Job Skills Training

Therapy Focused on Building Social and Drug Refusal Skills

New Recreational Activities and Social Networks

Motivational Interviewing

- MI is a **guiding** style of communication, that sits between **following** (good listening) and **directing** (giving information and advice).

- MI is designed to **empower** people to change by drawing out their own meaning, importance and capacity for change.

- MI is based on a **respectful** and **curious** way of being with people that facilitates the natural process of change and honors client autonomy

- Thousands of positive studies

- Hundreds of meta-analyses

- Well-established training protocols.

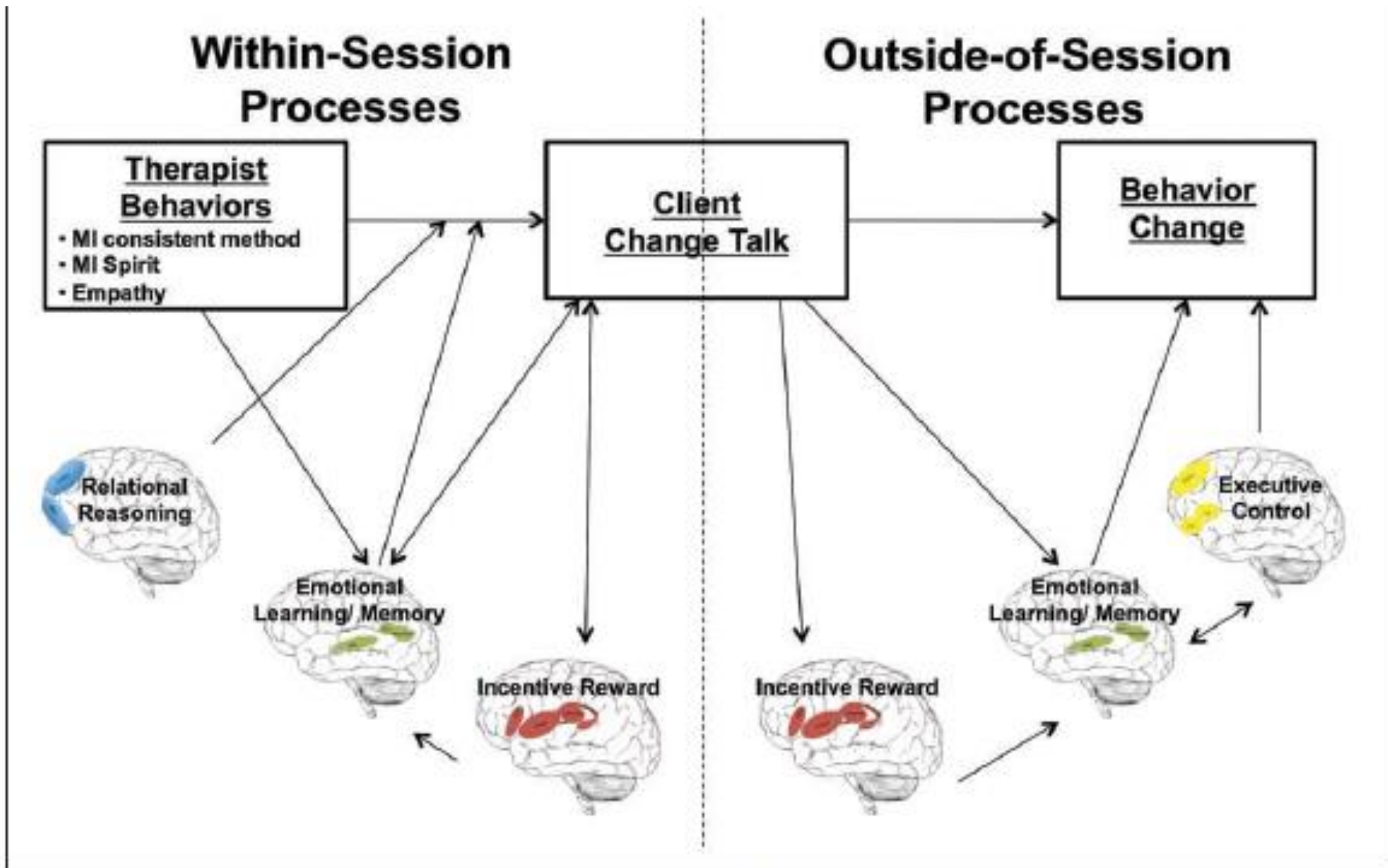- Proficiency requires supervised practice.

Over 450,000 in Print

THIRD EDITION

MOTIVATIONAL INTERVIEWING

Helping People Change

William R. Miller and Stephen Rollnick

FIGURE 2. Neural circuitry associated with the proposed model; MI = motivational interviewing

Feldstein, Filbey, Hendershot, McEachern & Hutchison, 2011

Modifications for people with neurocognitive impairment

More Directive
- More time spent in agenda setting
- Specific strategies to address tangential speech and thought

Cognitive adaptations
- More frequent summaries
- Simple reflections
- Cautious use of metaphor
- Visual aids during sessions
- Repetition

Supporting self-efficacy /agency

Focus on accepting and using environmental supports

Pharmacological Treatment

Deterrent
> Disulfiram
> Naltrexone (nonselective opioid agonist)

Craving reduction
> Acamprosate
> Naltrexone

Opioid replacement
> Methadone

Suboxone (Naloxone and buprenorphine)

SSRIs when there is a diagnosis of depressed mood

Anticonvulsants (may reduce days of harmful drinking)
> Topiramate
> Pregabalin

Harm Reduction: Helping a client move from more harm to less harm without insisting on abstinence
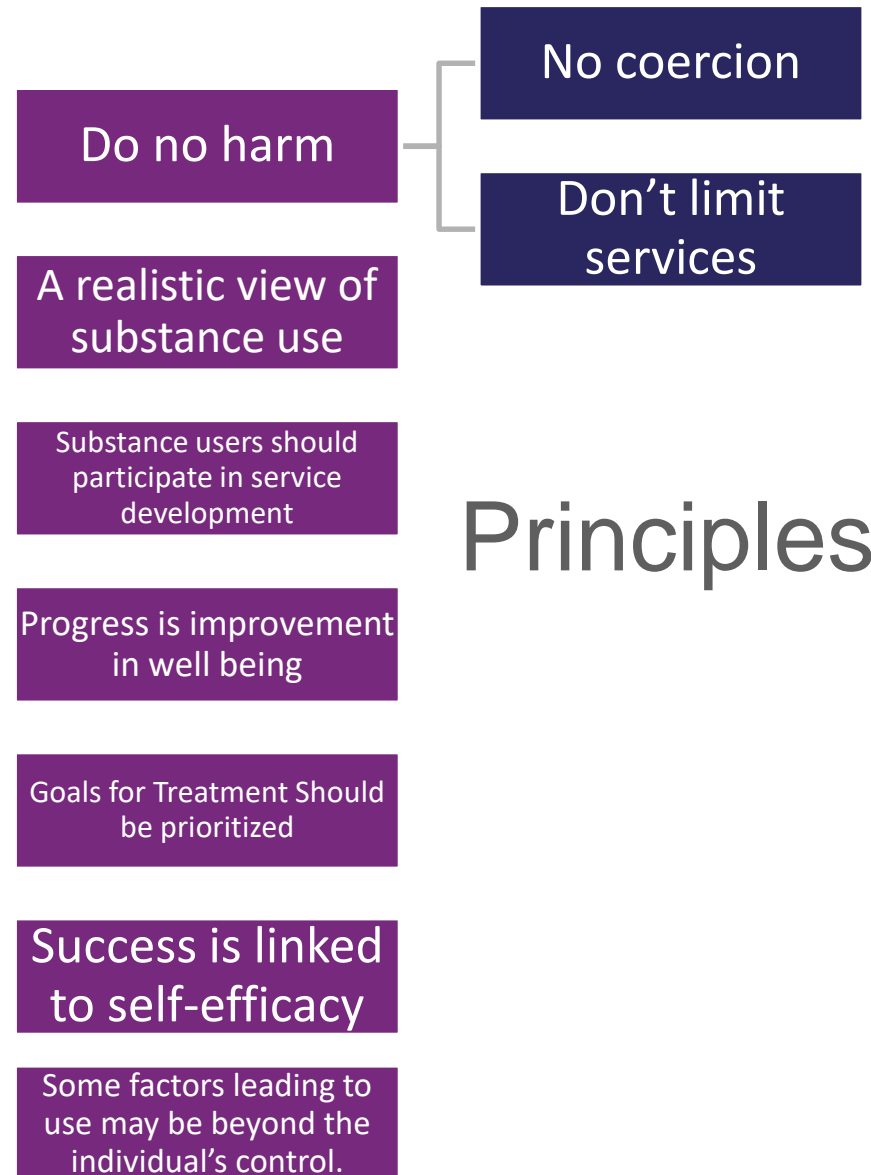
Policies, program and practices that aim to minimize the negative health and social impacts associated with drug use.

Safer substance use

Overdose prevention and reversal

Opioid agonist therapy

Harm Reduction

Do no harm
- No coercion
- Don't limit services

A realistic view of substance use

Substance users should participate in service development

Progress is improvement in well being

Goals for Treatment Should be prioritized

Success is linked to self-efficacy

Some factors leading to use may be beyond the individual's control.

Principles

Key Evidence-Based Interventions for Behavior Management

Positive Behavioral Supports

Mindfulness/Emotional Regulation Training

Goal Management Training

Meta-cognitive Training

Adapted Cognitive-Behavioral Therapy

Key Evidence-Based Interventions for Substance Use Disorders

- Motivational Interviewing
- Incentives to encourage participation in intervention
- Behavioral/cognitive behavioral strategies (coping skills)
- Development of behaviors incompatible with substance use (case management)
- Work with environmental Supports (CRAFT)
- Harm reduction
- Pharmacological Treatment

Central Clinical Considerations

Capacity for self-management

Ability to respond to reward and punishment

Capacity to resist 'dominant response'

Awareness of impact from brain injury

Awareness of harms associated with substance use

Cognitive impairment

Memory

Attention

Problem-solving

Communication

Potential supportive structures

What enables self-management

What limits self-management
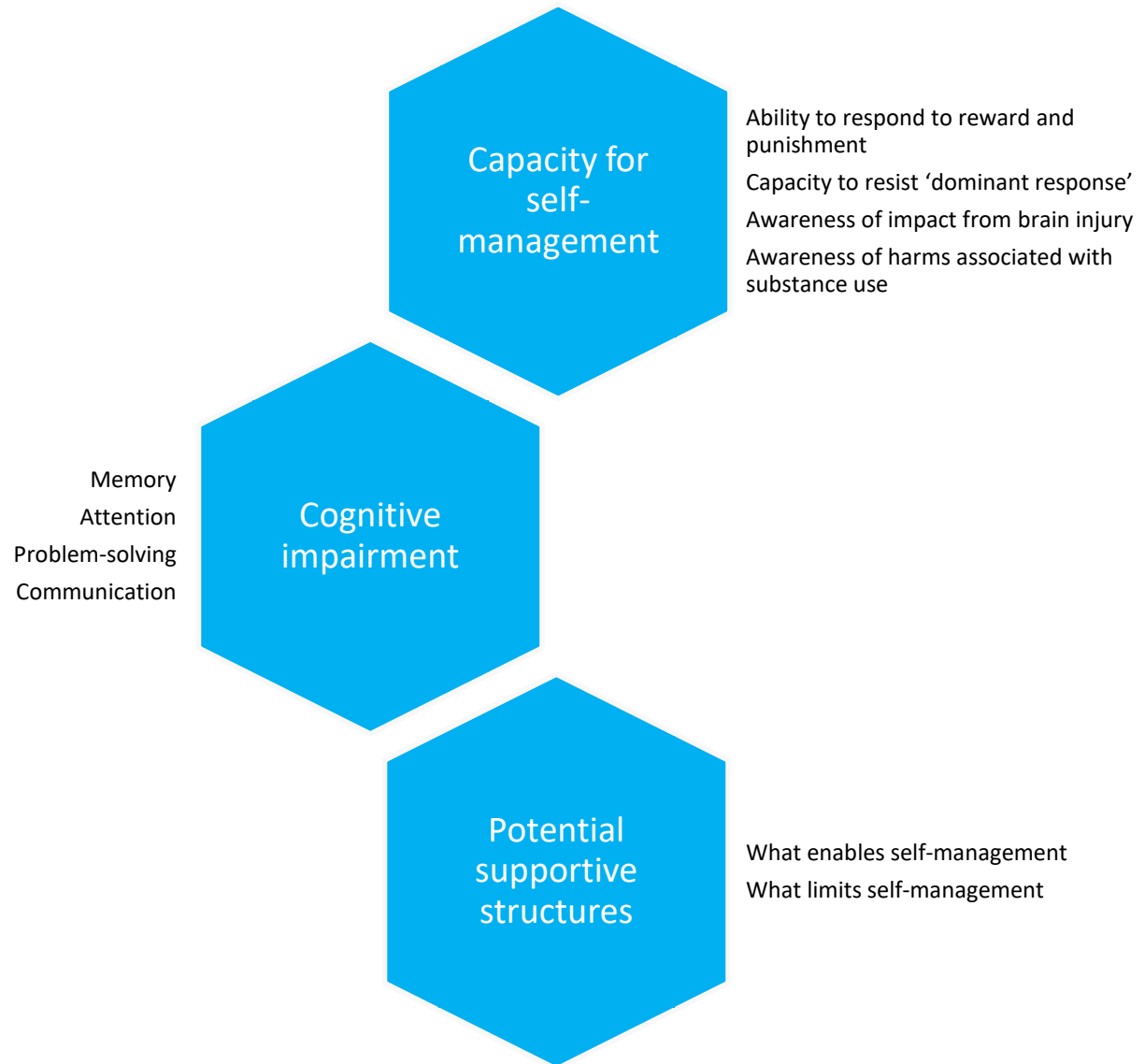
Each phase of the intervention will try to help you to answer different questions.

Working Together
- What is SUBI and how can it help?
- What are my rights and responsibilities?

Envisioning the Future
- What do I want for my life?
- How does my substance fit-in with my vision for the future?
- How do I set realistic goals?

Preparing for Change
- Formulating goals for change
- Clarifying my reasons for change

Gathering Resources and Building Skills
- How do I fill my time?
- Who can support me?
- What do I do when I'm sad, lonely, frustrated or angry?

Taking Action
- How do I prevent problem situations?
- What do I do if a problem occurs?
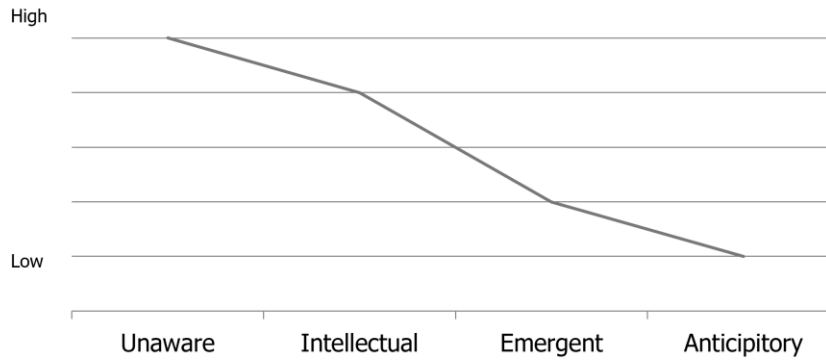- How do I get around the problems caused by my brain injury?

Maintaining Gains
- What will help me maintain the gains I have made?
- What is the plan for the long run?

Model of Intervention for the facilitator

Building Alliance	Enhancing Motivation for Change	Preparation	Action	Relapse prevention
Setting Norms/routines	Clarification of personal goals	Building a schedule of competing activity	Skill building	Managing Lapses
Creating an emotionally safe environment	Building discrepancy	Building a social network/supports	Specific changes strategies for substance use	Building a follow-up plan
	Fishing for Change Talk	Setting achievable goals		

Environmental Supports

High

Low

Unaware   Intellectual   Emergent   Anticipitory

Engagement

Persuasion

Active Treatment

Relapse Prevention

Crossen et al, 1993

Anticipatory Awareness ACTION

Emergent Awareness Preparation

Intellectual Awareness Contemplative

Unaware/pre-contemplative

Program Features

- Longer periods of intervention (extensive rather than intensive)
- Gradual fading-in of supports
- Focus on environmental supports when awareness/insight or commitment is low
- Smaller case loads
- Flexible, transdisciplinary interaction

CLIENT WORKBOOK

Substance Use and Brain Injury

SUBI

SUBSTANCE USE/
BRAIN INJURY
BRIDGING PROJECT

Second Edition
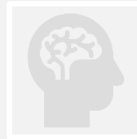
Designed to illustrate adaptations of common practice in intervention for substance use for ABI

A place to 'get started' for ABI-trained professionals

MI focus now structured as a treatment program

September 2021
Traumatic Brain Injury and Substance Use Disorders:
Making the Connections

Author: Carolyn Lemsky, PhD, C Psych ABPP-CN
Editors: Patricia Stilen, MSW and Thomasine Heitkamp, LCSW

TABLE OF CONTENTS

Building Partnerships

1

Investigate local programs

- Concurrent disorders programs may have the most flexibility in admissions and programming
- Know referral criteria, program philosophy and admission processes
- Explore access to addictions medicine

2

Start with individual clients

- Refer when the time is right (clients are ready and willing to participate)
- Develop communication/collaboration strategies

3

Offer Training/Consultation

- Client-specific strategies
- General TBI/SUD curricula
- Share resources

Resources

SUD and TBI

Information about Brain Injury and Substance use

www.Ohio Valley.org

www.Brainline.org

Client workbook

download

https://attcnetwork.org/sites/default/files/2022-02/Client%20Workbook_1.pdf)
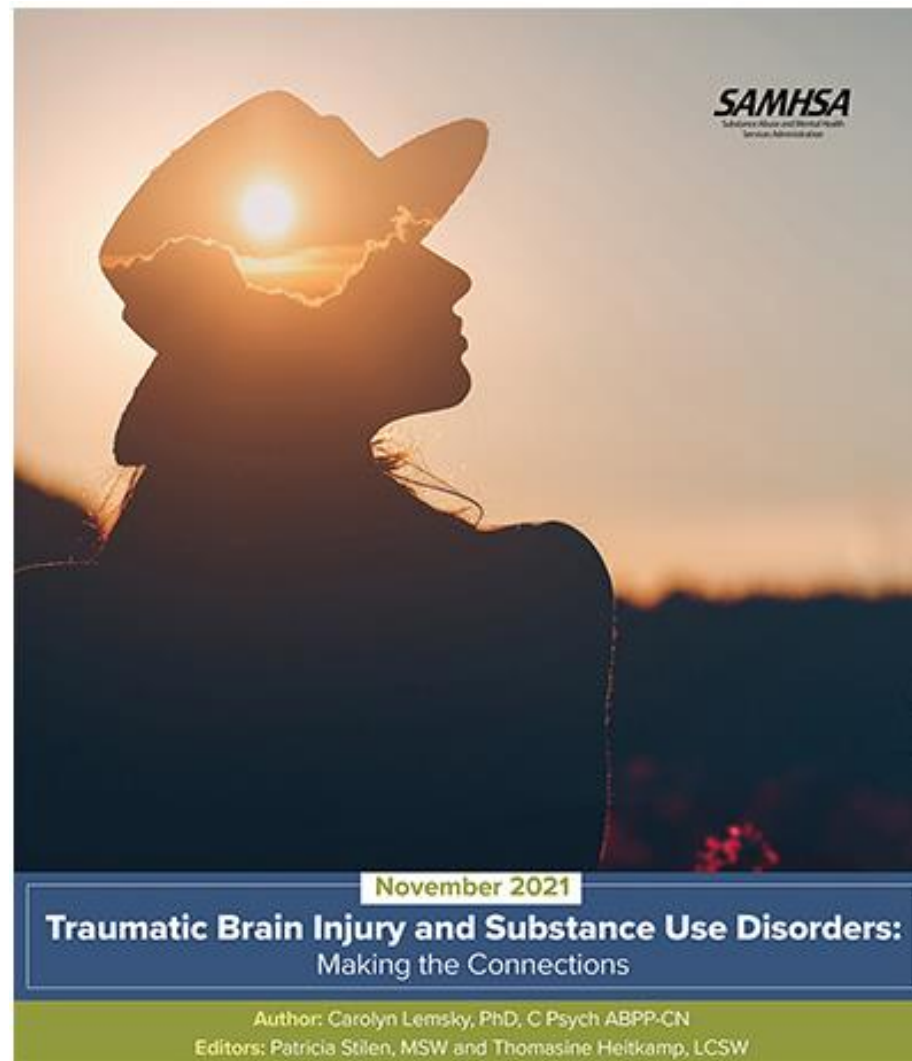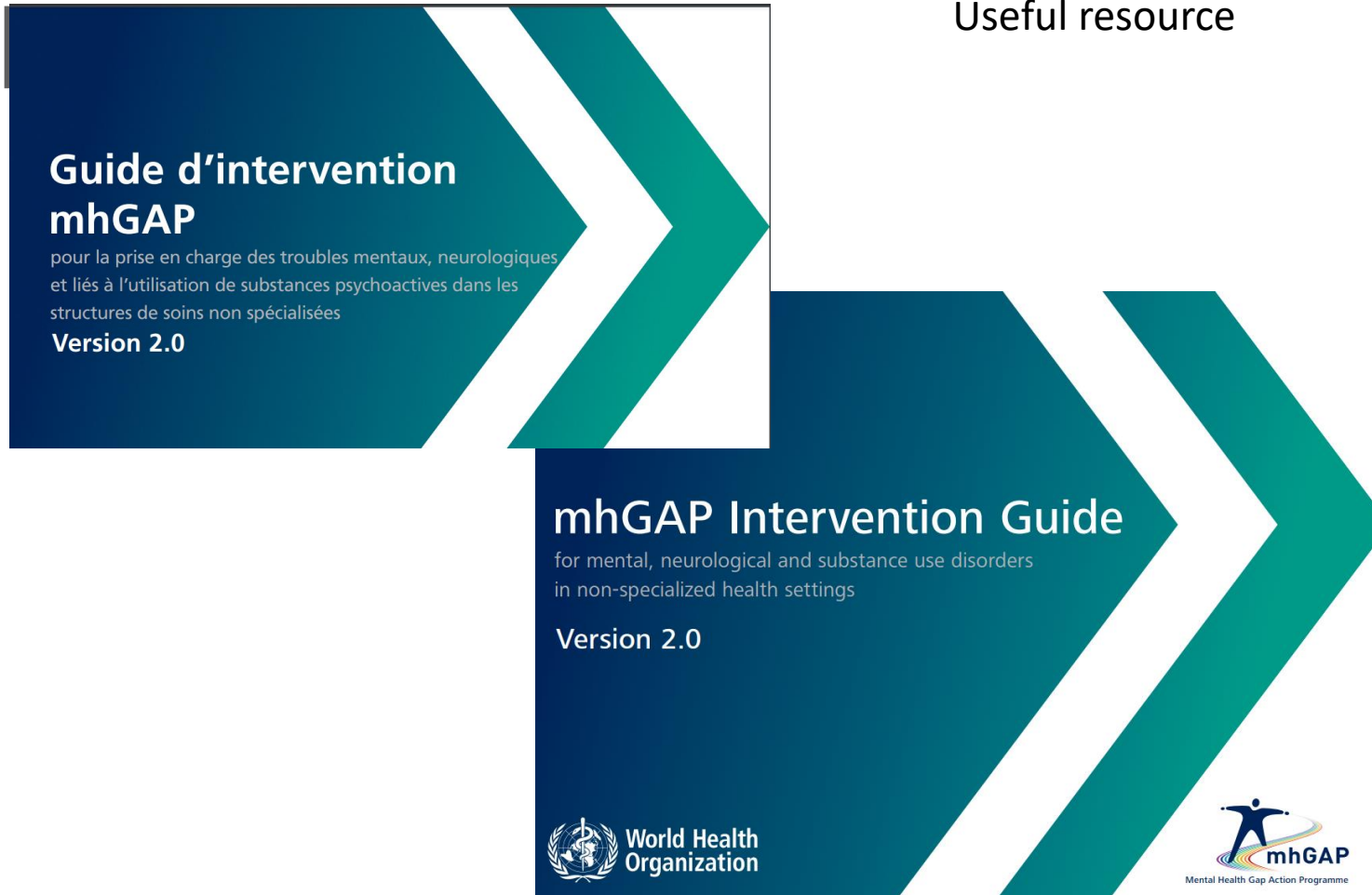
Multi-media

OLD VIDEO
https://www.youtube.com/watch?v=6RubUo3
urpA&t=133s

https://www.youtube.com/watch?v=Rmu3fPhxaGs

https://attcnetwork.org/centers/mid-america-attc/traumatic-brain-injury-sud-series

SAMHSA
Substance Abuse and Mental Health
Services Administration

November 2021

Traumatic Brain Injury and Substance Use Disorders:
Making the Connections

Author: Carolyn Lemsky, PhD, C Psych ABPP-CN
Editors: Patricia Stilen, MSW and Thomasine Heitkamp, LCSW

Useful resource

https://www.who.int/publications/i/item/9789241549790 (English)

https://apps.who.int/iris/bitstream/handle/10665/274363/9789242549799-fre.pdf?ua=1 (Français)

Craft / CRA

The Community Reinforcement Approach
An Update of the Evidence
Robert J. Meyers, Ph.D., Hendrik G. Roozen, Ph.D., and Jane Ellen Smith, Ph.D
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3860533/

Community Reinforcement Approach
https://www.ccsa.ca/community-reinforcement-approach-essentials-series

Questions?